Why is Wood Good?

The natural condition of the lake shore in Wisconsin is wooded forest or wetland edge. After the glaciers receded 10,000 years ago, the newly formed lakeshores were colonized by adapting vegetation which climaxed in forests of mixed hardwoods and conifers. These forested lakeshores continue to provide essential complex habitat through the perpetual process of shoreline trees falling into the water. This continuous recruitment of trees creates a wood-based physical structure in the near shore area that is common on all pristine water bodies. The insects, fish, amphibians, birds, and other animals have also evolved with this abundance of near shore wood which is essential to their life cycles.

Trees placed along shore in winter provide habitat for fish come spring thaw.

Wood in the near-shore areas of lakes continue to play a crucial role in the ecosystem. The forest-lake interface creates edge habitat on the shoreline. This forest-lake edge habitat, like all edge habitats, contains richer species diversity and higher concentrations of species than adjoining habitats themselves have. Research shows that a single white pine tree along the waterline could have as many as 27 separate species rooted on it. Aquatic animal life colonizes the woody structure throughout its lifetime, which can be as long as 300 years or more. The structures also protect the shoreline from wave erosion. These physically complex lake-shore habitats are far superior to the shorelines typically found today on well developed lakes.

FOOD—The abundance of wood in the near shore areas creates a super market for the animals in the lake. The bottom of a single pine log laying on shoreline could house a density of up to 75,000 invertebrates. While the invertebrates dine on the white pine, small fish gather to feast on them, and larger fish find the abundance of smaller fish to their liking. Research has proven that panfish in lakes with significant complex woody habitat have growth rates up to three times that of fish in more simple habitats due to the increased availability of invertebrates. Studies also showed that not only are there more fish along woody shorelines, but they feed in these areas at rates seven times higher than along shorelines void of wood. Waterfowl and shore birds utilize the high protein diet of invertebrates and small fish that call "Fish Sticks" home.

COVER—Wood complexes provide the critical cover fish and other animals require to successfully complete their lifecycles. All living things must have the opportunity to be born, to live and to successfully procreate. The nooks and crannies of the wood complexes offer critters safety from predators while at the same time concentrating prey to make predators more efficient. Wood provides the structure on which many species must lay or attach their eggs. More quality spawning and nesting habitat produces more young; more young provide more prey and the cycle continues.

Muskie on Upper Eau Claire Lake prowling in the "Fish Sticks".

Typical Bony Lake shoreline before "Fish Sticks".

SHORELINE PROTECTION—Wood complexes can protect shorelines from wind and wave erosion. The forty to fifty foot long trees commonly used to construct wood complexes calm the waters by absorbing the energy both of wind and powerboat generated waves. Without wood, waves can crash full force against the shoreline, creating areas of raw soil that will harm the lake. "Fish Sticks" protect shoreline property owners' interests as well as the fishes.

Bony Lake shoreline with "Fish Sticks" installed.

How much wood is enough?

On undeveloped lakes, the density of natural woody complexes often exceeds 1,100 pieces per mile; or one every five feet. On Bony Lake, the original density of wood was 36 pieces per mile, and has been increased to 179 pieces per mile through landowner efforts. This five-fold increase is still only 20% of the density usually found on the undeveloped lakes.

There is a tremendous opportunity for waterfront landowners to improve the quality of their lakes through the addition of more "Fish Sticks" to their shorelines.

Bony Lake "Fish Sticks" provide quality habitat.

What is the "Fish Sticks" Project?

In 2007, property owners on Bony Lake in southwest Bayfield County, in partnership with the Bayfield County Land & Water Conservation Department and the DNR, began a whole lake restoration project to move the shoreline on their lake toward a more natural appearance by enhancing the near-shore eco-system. An innovative part of this project was the installation of large diameter wood (whole trees and branches) to the restored or natural shorelines of interested landowners. In 2008, the Eau Claire Lakes Conservation Club provided volunteers and financial assistance to advance the concept of installing woody habitat on the Eau Claire Lakes Chain.

More landowners are participating and the number of lakes benefitting from the habitat work is increasing. Developing a process for landowners to easily install woody habitat complexes along their shorelines has sparked a revolutionary approach to shoreline restoration.

Fish benefit from increased cover and habitat diversity provided by aquatic plants and woody structures in lakes.

Financial and technical assistance is available to landowners wishing to install wood complexes on their shorelines.

Small mouth bass hanging out in "Fish Sticks".

- Continued:

Landowners have now installed more than 600 trees to their shorelines on four lakes. Bony Lake has increased the number of habitat trees available in the lake from 89 to nearly 500. The Upper & Middle Eau Claire Lakes have added almost 150 habitat trees, while Willipyro Lake has installed 106.

Trees are selected for use according to sound forest management guidelines and are not taken if considered to be future recruitment trees. Trees may come from the landowners' properties or from donor parcels nearby.

Installation is done from the ice, causing little ground disturbance of the uplands. The trees are attached to the shoreline by steel rods or cables, keeping them in place while they "settle in" for the next *couple of hundred of years*. As the ecologic importance of wood is better understood by lake property owners, interest in the installation of "Fish Sticks" increases. The addition of wood to the near shore area of the lake is the **next best** conservation practice after the establishment of a native vegetation plant community along the shoreline.

For more information contact:

Butch Lobermeier, Conservationist
Bayfield County LWCD
615 - 2nd Avenue East
P.O. Box 126
Washburn WI 54891

Phone: 715-373-6167
Fax: 715-373-6153
Email: blobermeier@bayfieldcounty.org
Website: www.bayfieldcounty.org

OR

Scott Toshner, Fisheries Biologist
WI DNR
6250 South Ranger Road
Brule WI 54820

Phone: 715-372-8539 ext. 121
Email: Scott.Toshner@Wisconsin.gov

To see more pictures of completed "Fish Sticks" go to the Bony Lake website:
www.bonylakewi.org

Bayfield County Land & Water Conservation Department

Wisconsin Department of Natural Resources

BAYFIELD COUNTY

An Innovative, Voluntary Habitat Enhancement Initiative for Lakeshore Owners